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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,417	11/21/2000	Gary Frazier	004578.1106	8188

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BAKER BOTTS LLP
2001 ROSS AVENUE
6TH FLOOR
DALLAS, TX 75201

EXAMINER

NGUYEN, DUC M

ART UNIT PAPER NUMBER

2685

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/716,417

Applicant(s)

FRAZIER, GARY

Examiner

Duc M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12,13 and 16-18 is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's response filed on 7/7/04. Claims 1-13, 16-24 are now pending in the present application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **19-21, 24** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Beaty** (US Pat No. **3,621,465**) in view of **Aull et al** (US **4,985,621**).

Regarding claim **19**, **Beaty** discloses a method for detecting signal strength of an input signal (see Figs. 2, 4A), comprising an oscillator 24 using a tunnel diode 58 for biasing a resonant circuit of the super-regenerative device 24 (periodically shutting down and restarting the oscillator) such that the width of the quench pulse varies with the signal strength of the input signal. (see Fig. 4A and col. 3, line 15 - col. **5**, line 27). Here, since the detected signal strength output depends on the quench pulse width (see col. 5, lines 18-24 and 40-45), and since the quench pulse width varies the duty cycle of the oscillator (i.e, duty cycle

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= pulse width/period T), it is clear that the duty cycle of the oscillator would vary with the signal strength of the input signal as claimed. Further, although **Beaty** fails to clearly disclose the tunnel diode is the resonant tunneling diode as claimed, **Beaty** discloses that the tunnel diode presents a negative resistance devices (see col. 4, lines 30-33). Since it is known in the art that the resonant tunneling diode is a negative resistance device as disclosed by **Aull** (see col. 4, lines 23-27), it would have been obvious that such tunnel diode as disclosed in **Beaty** would be the resonant tunneling diode, or that it can be replaced with the resonant tunneling diode as well, for being able to detect signals with frequencies in the microwave range.

Regarding claim **20**, the claim is rejected for the same reason as set forth in claim 19 above. In addition, **Beaty** discloses a signal source for the oscillator as claimed (see Fig. 4A).

Regarding claim **21**, the claim is rejected for the same reason as set forth in claim 19 above. In addition, **Beaty** discloses a quench generator (see Fig. 4A, ref. 22).

Regarding claim **24**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, **Beaty** discloses the signal source arrived from an antenna as claimed (see Fig. 4A).

3. Claims **22-23** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Beaty** in view of **Aull** and further in view of **Pottier** (US 4,398,283).

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Regarding claim **22**, the claim is rejected for the same reason as set forth in claim 19 above. However, **Beaty** fails to disclose the quench generator operates at a lower frequency than the oscillator. However, **Pottier** discloses a super-regenerative device wherein a quench generator operates at a lower frequency than the oscillator (see Fig. 1, col. 2, lines 32-35). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide the above teaching of Pottier to Beaty and Aull for providing a quench generator as claimed, for cost saving (the higher operating frequency of the generator, the more expensive).

Regarding claim **23**, the claim is rejected for the same reason as set forth in claim 19 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify the above teaching of Pottier, Beaty and Aull for providing a quench generator that operates at a frequency less than 10 percent of the oscillator frequency as claimed, for cost saving.

Allowable Subject Matter

4. Claims 12-13, 16-18 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 12, the cited prior art fails to disclose or make it obvious an apparatus or method for a microwave detector which comprises components as specified in the claim, wherein a pair of resonant tunneling diode of the oscillator

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is arranged in push-pull configuration and coupled to a quench circuit for detecting signal strength of an input signal after the oscillator has been biased out of an oscillation.

Response to Arguments

6. Applicant's arguments with respect to claim 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Cloutier (US Pat No. 6,668,165), Inverted super regenerative receiver.
- Anderson (US 5,146,613), Low power UHF data transceiver.
- VerPlanck et al (US 3,883,809), Super-regenerative mixers and amplifiers.

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications intended for

entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

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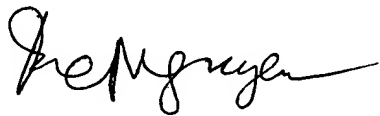
Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or communications from the
examiner should be directed to Duc M. Nguyen whose telephone number is (703)
306-4531, Monday-Thursday (9:00 AM - 5:00 PM). Or to Edward Urban
(Supervisor) whose telephone number is (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application
should be directed to the Group receptionist whose telephone number is (703)
305-4700.

Duc M. Nguyen

Sept 19, 2004

A handwritten signature in black ink, appearing to read "Duc M. Nguyen", written over the typed name.